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DESCRIPTIONS OF TWO RACES OF *PEROGNATHUS*  
*INTERMEDIUS* FROM ARIZONA.

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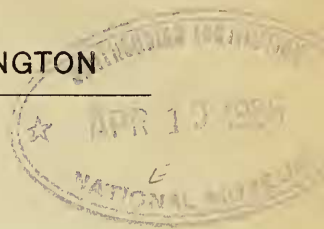
The rock pocket mouse (*Perognathus intermedius* Merriam) has a wide range in the deserts of Arizona south of the Colorado River. It is an inhabitant of rocky ground, preferring canyons, hills, and gullies to plains and sandy ground. In consequence, it is not evenly distributed over its general range, but tends to occur in more or less isolated populations. There is much geographic variation within the species. It appears possible that each of the many isolated populations is unique in the possession of some character, or combination of characters. While it seems inadvisable now to recognize each one of these populations as a separate geographic race, some of them diverge so much from the average, that it seems desirable to grant them subspecific rank. Two such races are described below.

***Perognathus intermedius crinitus*, new subspecies.**

*Type*.—Adult male, skin and skull, no. 55883, Mus. Vert. Zool., from 2.6 miles west of the Wupatki Ruins, Coconino County, Arizona. Collected October 8, 1932, by Louise Kellogg. Original number 1889.

*Distribution*.—Northeastern Arizona and southeastern Utah south of the Colorado and San Juan rivers; probably intergrading with *P. i. intermedius* through the Grand Canyon of the Colorado.

*Diagnosis and comparisons*.—A race of *Perognathus intermedius* characterized by large size, soft long pelage, and strongly penicillate tail. Compared with *Perognathus intermedius intermedius* Merriam as represented by topotypes, *crinitus* has, on the average: an actually and relatively longer, and more penicillate tail; softer, longer, denser pelage; longer, relatively narrower skull; relatively smaller and less expanded mastoids. For comparison with *Perognathus intermedius umbrosus* see description of the latter below.



*Color* (capitalized terms after Ridgway, Color Standards and Color Nomenclature, 1912).—Dorsal hairs with tips black, subterminal bands Light Pinkish Cinnamon, basal portions Neutral Gray. Hairs of throat, breast, and feet white. Belly hairs white or faintly suffused with Pale Pinkish Cinnamon. Tail bicolor, blackish above, white beneath. Narrow stripe of Light Pinkish Cinnamon along flanks. The color of the sub-terminal band of each hair dominates the color tone.

*Measurements*.—Average, minimum, and maximum measurements in millimeters of adult males (the single number in parenthesis indicates the number of specimens averaged): Total length (10), 175 (167–179); tail (10), 99 (95–101); hind foot (12), 23 (21–24); ear from crown (12), 5 (5–6); weight in grams (12), 14.0 (12.4–18.1). Skull: occipitonasal length (16), 25.0 (24.3–25.8); frontonasal length (15), 16.7 (16.0–17.5); mastoid breadth (16), 13.1 (12.7–13.6); length of mastoid (15), 8.2 (7.9–8.5); distance between stylomastoid foramina (15), 10.2 (9.7–10.6); inter-orbital space (15), 6.3 (6.0–6.5).

*Specimens examined*.—Total number, 35, from the following localities: *Utah*. San Juan County: Rainbow Bridge, 2; Navajo Mountain Trading Post, 1. *Arizona*. Coconino County: south side of Grand Canyon Bridge, 2; Moa Ave, 1; Little Colorado River at Cameron, 16; Black Tank, 2; Tanner Tank, 2; 2.6 miles west of Wupatki Ruins, 8; lava field 12 miles north of Deadman Flat, 1.

*Remarks*.—The range of this race is probably separated from the ranges of the other races to the south by the Mogollon Plateau. It meets the range of the race *intermedius* only in the Grand Canyon.

It is interesting to note that in its pelage, softer, longer, and denser than in the other races of *intermedius*, *crinitus* shows some approach toward *Perognathus formosus*, a counterpart as to habitat, whose range is separated from that of *crinitus* by the Colorado River. These species are, however, altogether distinct.

#### ***Perognathus intermedius umbrosus*, new subspecies.**

*Type*.—Adult male, skin and skull, no. 55964, Mus. Vert. Zool., from Camp Verde, Yavapai County, Arizona. Collected October 3, 1932, by Louise Kellogg. Original number 1863.

*Distribution*.—Known only from the vicinity of the type locality.

*Diagnostic characters and comparisons*.—A large, dark-colored race of *Perognathus intermedius*, with a large, relatively narrow skull and small mastoids. Compared with *P. i. intermedius*, as represented by topotypes, *umbrosus* differs in larger body size, larger feet, relatively narrower skull, proportionally shorter rostrum, and smaller, less inflated mastoids. Compared with *P. i. crinitus*, *umbrosus* differs in average larger size, harsher scantier pelage, less penicillate tail, larger skull, less expanded mastoid bullae.

*Color*.—Dorsal hairs with tips black, narrow subterminal bands Light Pinkish Cinnamon, basal portions Deep Neutral Gray. Hairs of throat, breast and front feet, white. Hairs of belly and hind feet white or Light Pinkish Cinnamon. Tail with a dark dorsal stripe. Sides and lower side

of tail white. The dark color of the tips and bases of the dorsal hairs dominates the color tone.

*Measurements.*—Average, minimum, and maximum measurements in millimeters of adult males (the single number in parenthesis indicates the number of specimens averaged): Total length (7), 175 (167–178); tail (7), 96 (89–100); hind foot (7), 23 (22–24); ear from crown (5), 5 (4–5); weight, (5), 16.8 (16.0–17.9). Skull: occipitonasal length (6), 25.8 (25.4–26.7); frontonasal length (6), 16.9 (16.6–17.2); mastoid breadth (7), 13.4 (13.1–13.6); length of mastoid (7), 8.5 (8.2–8.8); distance between stylomastoid foramina (6), 10.6 (10.1–11.3); interorbital space (6), 10.6 (10.1–11.3).

*Specimens examined.*—Total number, 22, from the following localities: *Arizona*. Yavapai County: Camp Verde, 19; 1 mile west of Camp Verde, 1; 5 miles northeast of Camp Verde, 2.

*Remarks.*—This race bears a remarkable resemblance in some characters to *Perognathus fallax* of California. It represents the extreme in the species *intermedius* in the development of large size of skull, and relatively small mastoid bullae. The other extreme is represented by *intermedius* from the lower part of the Colorado River Valley. Were it not for intergradation with *intermedius* in skull characters through the race *crinitus* it would be easy to regard *umbrosus* as specifically distinct. Specimens of *intermedius* from New River Valley, 30 miles north of Phoenix, approach *umbrosus* in color, but more nearly resemble topotypes of *intermedius* in skull characters.